

VISIT...

CACTI

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BIOLOGY AND USES

Edited by Park S. Nobel

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A

B

C

D

Figure 2.1. Dermal and cortical anatomical characteristics of *Polyscias* spp. (A) *Polyscias guineensis* with irregular cell divisions and a two layer hypodermis; (B) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (C) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (D) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (E) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (F) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (G) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (H) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (I) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (J) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (K) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (L) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (M) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (N) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (O) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (P) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (Q) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (R) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (S) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (T) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (U) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (V) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (W) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (X) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (Y) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex; (Z) *Polyscias guineensis* with a thick cuticle, papillose epidermal cells and palisade parenchyma cells of the outer cortex. Scale bars: A = 25 μ m, B...D = 1 mm.

A

B

C

D

Figure 2.2. Mucilage cells and mineral inclusions. (A) *Penocereus sciurus*, abundant mucilage cells; (B) *Penocereus sciurus*, elongated crystal in a mucilage cell of the cortical region; (C) *Chiotilla phaeocrystal* in the cortical region; and (D) *Penocereus gummosus*, grains in the epidermal cells. Scale bars: A = 1 mm, B = 100 μ m, C ... D = 20 μ m.



Figure 2.3. Secondary xylem and phloem in (A) *Pereskia striata*, distinctive short living fibers; (B) *Echinocereus schmollii*, abundant wide-band tracheids; (C) *Pachycereus pringlei*, sclereid in the collapsed phloem and dilated rays; and (D) *Wilcoxia poselgeri*, phloem parenchyma cells with tannins between noncollapsed phloem and cortical cells. Scale bars: A, B, D = 20 μ m, C = 1 mm.

A

B

C

D

Figure 3.4. Root tips of *Senecereus gummosus* (A) 24 hours, (B) 36 hours, and (C) and (D) 48 hours after the start of radicle protrusion. Root hairs (arrows) approach the tip in (A) and (B) and later cover the tip completely in (C). In (D), the apical cells (arrow) have not formed root hairs. Scale bars: A = 400 μm , B... C = 100 μm , D = 50 μm .

A

B

Figure 11.1. (A) *Mocereus undatus* on single-plant trellis system in Taiwan and (B) *M. undatus* (on left) and *Mocereus polyrhizus* (on right) on row trellis system under shade net (shade cloth) in Israel, where injury occurred at high summer temperatures of 45°C.

A

B

Figure 13.5. Capsules and tablets prepared from *Opuntia* cladodes in Mexico: (A) packaging and (B) contents.

A

B

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